THE IMPACT OF FISCAL DECENTRALIZATION: A SURVEY

Jorge Martinez-Vazquez*
Santiago Lago-Peñas**
Agnese Sacchi***

* Georgia State University and GEN
** GEN, IEB and University of Vigo
*** La Sapienza University of Rome (Italy) and GEN
The Impact of Fiscal Decentralization: A Survey

Jorge Martinez-Vazquez, a Santiago Lago-Peñas, b and Agnese Sacchi c

a International Center for Public Policy (Georgia State University) & Governance and Economics research Network (GEN)

b GEN and University of Vigo

c La Sapienza University of Rome (Italy) and GEN

Abstract

In this article, we offer a comprehensive and updated review of the impact of fiscal decentralization on the economy, society and politics. Our first target is the examination of two crucial and yet unsolved issues in the empirical literature on decentralization: the proper measurement of decentralization itself and its potential endogeneity in econometric estimates. Then, we discuss the main existing findings on the effects of decentralization on a relevant list of socio-economic issues. The impact of fiscal decentralization reforms on political institutions and public policies is also considered. Complete answers on the impact of fiscal decentralization are not likely to be certain but, overall, there are reasons to be optimistic about the net positive result. Our survey by necessity has to be selective but it presents a balanced view of what is known and what is not yet known opening room for further research and practice on fiscal decentralization.

JEL classification: H70, H72, H77

Keywords: Fiscal federalism, political decentralization, sub-national governments, macroeconomic stability, economic growth, politics, corruption, income inequality, service delivery, tax morale.

ACKNOWLEDGMENTS: This research has been financially supported by the Spanish Ministry of Science and Innovation (CSO2013-4703-C2-2-R and ECO2012-37572). We are grateful to two anonymous reviewers and the editor for very helpful comments and to Gabriel Leonardo, Fernanda Martinez, and Alejandro Dominguez for able research assistance.
1. INTRODUCTION

Over the last several decades many countries around the globe have devolved fiscal and political powers to sub-national governments. According to data gathered by Garman et al. (2001), more than 80 percent of the seventy-five developing countries analyzed had been undergoing some decentralization of authority by the beginning of the millennium. The picture is quite the same in developed countries. The index of regional authority computed by Hooghe et al. (2010) for 42 democracies and semi-democracies reveals that 70% of countries have decentralized since 1950.

Decentralization is motivated by quite different reasons. In the past several decades, a large number of unitary countries have sought decentralization as a means of searching for a more efficient and leaner public sector. Other countries became disenchanted with the performance of former planning and centralized policies. Indeed, fiscal decentralization deals with how the public sector is organized and how to create opportunities for higher growth and welfare. Decentralizing governance can restore confidence in public policies and provide a basis for broader policy consensus. There are often grassroots demands to achieve democratic ideals through decentralization. On the other hand, some decentralization movements are designed to contain centrifugal forces, ethnic conflicts, and/or separatist movements, and to smooth out social and political tensions by means of allowing more local autonomy.

Since sub-national governments are now key actors in the delivery and provision of public goods and services to citizens all over the world, it has become increasingly important to know the impact of fiscal decentralization on the economy, the society and politics. The array of socio-economic issues is wide and it includes growth and development, reducing poverty and achieving the Millennium Development Goals), improving public sector efficiency and governance, or achieving greater macroeconomic stability and fiscal sustainability. The fundamental question is whether the ongoing decentralization trend is helping or hurting those important policy goals. Moreover, there are other key institutional and political aspects affected by fiscal decentralization and interacting with public choices that merit attention. The set of issues is again wide and diverse, including country unity and separatism, the level of corruption, accountability and political representation, and the nationalization of political party systems.

In this article, we offer a comprehensive review of what is known to date on the impact of fiscal decentralization. We begin with a synthetic review of the main theories of fiscal federalism in order to put into perspective the empirical work surveyed. In section 3 we deal with three crucial and yet unsolved issues in the literature on decentralization: first, its proper measurement; second, its potential endogeneity; and third, the lack of uniform data sets that capture the multidimensionality of decentralization. In section 4, we critically review the main findings in the literature on the effects of decentralization on a relevant list of socio-economic variables (e.g., efficiency, economic growth and investment, income inequality and poverty, macroeconomic stability, regional disparities). Political consequences (e.g., on the public sector growth, government accountability and corruption, social capital and tax moral, voter turnout) are discussed in section 5. Section 6 concludes.

2. FIRST AND SECOND GENERATION THEORIES OF FEDERALISM

Decentralization implies the devolution of decision-making powers to sub-national governments, as opposed to “deconcentration” where central government operations are decentralized, but
there is no devolution of any decision-making powers. In addition, decentralization is a multifaceted phenomenon since it encompasses political, administrative, and fiscal dimensions that are implemented at varying extents on the vertical structure of governments also interacting with each other.

Traditional theory of fiscal federalism and intergovernmental fiscal relations draws heavily from the seminal contributions of Tiebout (1956), Musgrave (1959), Oates (1972) and Olson (1969) among others. In this literature, the economic case for decentralization is simply made by arguing that the devolution of tax and expenditure authority yields greater public sector efficiency. Viewing government as a benevolent agent, Oates’ well-known decentralization theorem states that in the presence of diverse preferences and needs, provision of public services by a decentralized government structure generally will lead to increased citizen welfare. This fundamental result derives from the fact that decentralized government is assumed to lead to information advantages and more flexibility in adapting to citizens’ needs and preferences. This fact is reinforced by the mobility of households since as claimed by Tiebout (1956) individuals can vote with their feet and sort themselves into homogenous communities where their preferences are maximized.

The classical principles for decentralization design are well traveled across countries and over time. Hundreds of decentralization programs proposed by multilateral international organizations, bilateral donors, and policy advisers have been inspired by these principles. After certain design issues have been addressed, such as imposing hard budget constraints, the classical framework has been quite robust and successful.\footnote{In reality, countries differ considerably on how decentralized they are. There is a literature that explores the determinants of fiscal decentralization, from a theoretical perspective (Arzaghi and Henderson, 2002; Panizza, 1999) and empirically (Canavire-Bacarreza and Martinez-Vazquez, 2012).}

An important extension of this literature is what has become known as “second-generation” fiscal federalism, a literature that brings a public choice perspective by assuming the presence of selfish public officials with their own agenda, as opposed to the benevolent public officials assumed in the previous literature.\footnote{The assumption of selfish public officials is the cornerstone of the public choice theory. Brennan and Buchanan (1980) in their Leviathan hypothesis argued that the decentralization of tax and spending powers introduces competition among governmental units seeking to attract citizens and other mobile resources, and thereby constrains the reach and size of the public sector.} A good example of second generation work is the literature on market-preserving federalism, which focuses on incentives for government officials not to deviate from “good behavior” and emphasizes the role of decentralization as a mechanism to control an expansive public sector and also support private market activity (Weingast 1995). The second generation literature depicts a world where political and fiscal institutions work under imperfect information and political agents have their own objective functions which are distinct from that of the “society” as a whole (Oates 2005).

Incentives and knowledge are two important factors in determining how the institutions and agents behave. For instance, Seabright (1996) views elections as incomplete contracts where some information is not verifiable. The benefits and costs of decentralization are no longer limited to efficiency gains and losses; the second wave literature identified other goals for decentralization as well as tradeoffs. Limiting government size through competition might come at the price of starting a “race to the bottom” with slashed taxes and service provision levels, leading to an inefficient provision of public goods (Wilson, 1986; Zodrow and Mieszkowski, 2005).
1986). Moreover, increased decentralization can improve accountability of government officials but it is likely to make policy coordination more complex (Oates, 2005).

The treatment of institutional characteristics has also been different. Whereas the first wave has focused more on governance structure and its relation to fiscal and economic matters – number of levels of government, jurisdiction size, both expenditure and revenue assignments – the second wave focused more broadly on the design of those structures as political as well as economic institutions (Weingast, 2009).

Another area where differences may be seen is how decentralization should be financed. The first generation literature posited that revenue generation at the regional level should follow the benefit principle because it enhances government accountability and reduces induced distortions from taxing mobile tax bases. Grants are seen as addressing vertical imbalances and horizontal disparities, and also as a way internalize benefit spillovers beyond regional borders. By contrast, the second generation literature emphasizes the effects of grants on regional incentives to economic growth, rent-seeking, and budget balance. And it considers hard budget constraints, limits to issuing debt, and bankruptcy laws as devices to discipline and shape the incentive structure of subnational governments.

Finally, it has been put into question that uniform central provision is the right counterfactual for decentralization (Lockwood 2002; Besley and Coate, 2003). It may not be if central governments are able to diversify and customize the provision of public services in a manner similar to decentralized governments. Alternatively, privatization instead of decentralization might be alternative to centralization (Tanzi, 2002). However, further questions are raised regarding whether deconcentrating can be as efficient as decentralization because of lower accountability and the lack of interest by central authorities in diversifying the provision of public services (Seabright, 1996).

Recapping, there are in fact several theories of fiscal decentralization. And although these theories are compatible in many fundamental issues, in some cases they might also lead to different predictions in terms of the impact of fiscal decentralization and also the different mechanisms which lead to those results. The impact of fiscal decentralization on government size is an example of those differences in predictions and operating mechanisms.

3. ISSUES TO WORRY ABOUT: MEASURING DECENTRALIZATION AND ADDRESSING ENDOGENEITY

Two basic issues continue to represent significant obstacles when analyzing the consequences of fiscal decentralization from an empirical standpoint. The first is how to measure it and weather the necessary data are actually available. Ideally, decentralization measures should take into account its multi-dimensional nature, including political and administrative aspects, but also looking at both sides of the budget and at the actual degree of autonomy given to sub-national governments over tax and spending decisions (Ebel and Yilmaz, 2003). In particular, shared taxes usually appear in official statistics as sub-national revenue, although the sub-national government has no autonomy in determining the revenue base or rate.³

³ Revenues are reported based on which level of government ultimately receives the revenues. Some attempts to overcome this shortcoming are those of Stegarescu (2005) and Gemmell et al. (2013). However, data coverage is typically limited in terms of countries and years.
Moreover, tax sharing links the budgets of the central and local governments in a complicated way and creates a moral hazard and conflict of interest among different levels of government. In this perspective, problems of soft budget constraints (Rodden et al., 2003), yardstick competition (Bordignon at al., 2003) and tax competition (Köthenbürger, 2004) may arise and they should be taken into account in dealing with fiscal decentralization consequences.

The second obstacle has to do with the problem of endogeneity. Because decentralization is contemporaneous to many other forces and processes, it is far from clear how to isolate its effect from these other phenomena and how to know whether decentralization is a cause or itself also an effect of the policies and institutional changes in which we are interested.

3.1 Measuring decentralization: Concepts, data sources and indicators

The debate surrounding the measurement of decentralization continues in both economics and political science literatures. Most of the good measures essentially boil down to a few concepts: locally raised own revenues, autonomy on expenditure decisions, locally spent national grants, or even number and size of local units. The challenges are conceptual but also those related to data availability.

Differences in how decentralization is defined and measured can result in widely differing values of the decentralization variable (Liu et al., 2012; Voigt and Blume, 2012). As a point of departure, Rodden (2004) proposes a sound three-category classification of decentralization. First, fiscal decentralization as captured by means of expenditure and revenue data, often adopted in empirical studies. Second, policy decentralization, focused on how and to what extent higher levels of government affect or override policy decisions of lower levels of government. Third, a political dimension for decentralization captured by the process by which the local officials assume their offices.

However, this distinction is not so clear-cut in practice. The different aspects of decentralization may interact with one another affecting the meaning and effectiveness of similar measures of decentralization. For example, centrally determined standards of service and/or federal laws may considerably limit sub-national governments’ discretion and autonomy, or delegated responsibility for tax collection may over-state actual policy revenue autonomy. The degree of party centralization may also exert a lot of influence over the independence of local officials and the actual outcomes of otherwise identical systems of fiscal decentralization (Ponce-Rodríguez et al., 2012).4

Narrowing the focus to fiscal decentralization does not necessarily lead to less ambiguity on what is the relevant definition to be used. For example, Neyapti (2010) and Rodden (2002) both addressed how fiscal decentralization affects governments’ fiscal discipline but the former focuses on expenditure and revenue decentralization as shares of general government, while the latter on the vertical imbalances and sub-national borrowing.

In addition, no single measure of decentralization can capture all the multiple dimensions that decentralization offers. And even though composite measures of decentralization that may be attractive and useful in some contexts they can also fall short when measuring the impact of

---

4 The political dimension of decentralization is most often measured by whether the constitution classifies a country as a federation or as a unitary state and by whether sub-national officials are elected (Fan et al., 2009). The importance and consequences of different degrees of party centralization have been given some attention in the literature (Riker 1964; Enikolopov and Zhuravskaya 2007).
decentralization on specific policy outcomes (Martinez-Vazquez and Timofeev, 2010; Liu et al., 2012). The key message in these papers is that aggregating those distinct dimensions of decentralization into a single indicator inevitably leads to a loss of information and that therefore in a multivariate framework the distinct aspects of decentralization should enter the regression separately in the most flexible functional form.

Regarding data availability, typically, cross-country and panel analyses are most commonly based on OECD fiscal decentralization data – when focusing on advanced economies – and on the IMF’s Government Finance Statistics (GFS) yearbooks together with the World Bank’s decentralization indicators – when the sample includes both developed and developing countries as well.

Starting from a pioneering study (OECD 1999) and providing recent updates (Blöchliger and Nettley, 2015), with these data it is possible to measure the different levels of sub-national taxing power and suggest a categorization of sub-national taxes into five different types from more “autonomous” taxes to “effectively federal (central) taxes or intergovernmental grants”. However, even with this classification, the inconsistency in the definition of sub-national taxes would be still problematic because a significant amount of sub-national revenue comes from tax sharing arrangement in many OECD member countries.

The GFS data from the IMF contains annual time series of sub-national government fiscal data for 1990 to the present; data in this series before 2000 are reclassified on an accrual basis. Even though the GFS framework provides a good level of data standardization across countries, the standardized available data are much less detailed for the purpose of constructing comprehensive decentralization indicators.

Given the lack of information on effective fiscal autonomy and the incompleteness of the data, a number of authors have made considerable efforts over the years to put together and make available data sets to improve on the information available from the traditional sources of IMF/GFS and OECD. Among others, Ivanyna and Shah (2014) developed wide ranging data sets for a variety of decentralization dimensions including also political and administrative variables but only cross-section or for few years. Others like Stegarescu (2005) and Baskaran and Feld (2013) have concentrated in collecting time series data on actual tax autonomy building on the information available for OCDE countries. Unfortunately, none of these data sets has been kept updated. Some recent work along the lines of a single index of decentralization is noteworthy. The Regional Authority Index (RAI) designed and computed by Hooghe et al. (2016) addresses both the multifaceted nature of decentralization and the need to combine several complementary indicators. Using a synthetic index may be especially helpful when there is a limitation in the number of degrees of freedom in the empirical analyses; nevertheless, it still does have the limitations of not capturing all the potential dimensions of decentralization and discretionally assigning weights to each of its components.

Summing up, the richness and multidimensionality of decentralization pose a very significant challenge to the empirical work. Presently there continues to be a dearth of comparable data beyond the two institutional sources of OECD and GFS, which in themselves are rather problematic. Clearly, there is strong need for further work in this area.

---

The RAI is a global index of self-rule, which is based on the addition of partial indices measuring the different dimensions of decentralization (e.g., the extent to which a regional government is autonomous rather than deconcentrated; the extent to which a region is endowed with an independent legislature and executive; etc.).
3.2 Endogeneity issue: Empirical strategy and instruments

The second issue to deal with is endogeneity. This means that there is a need to evaluate whether decentralization is also caused by economic processes we are trying to evaluate, such as economic growth. Endogeneity problems could arise due to the simultaneous effects of omitted variables on both decentralization and some of the seemingly exogenous variables.

As an example, while fiscal decentralization may affect either economic growth, governments could resort to decentralization reforms in an effort to increase their rate of growth, or fiscal discipline or other processes. Similar cases of reverse causality issue may happen in studying the relationship between decentralization and regional economic disparities (see, recently, Kyriacou et al., 2015).

Earlier studies barely acknowledged the endogeneity issues, while later studies offered possible, but often inadequate solutions. For example, some studies have used initial values of the independent variables to reduce the endogeneity issue (Akai and Sakata, 2002), while other studies proposed using lagged independent variables as instrumental variables (IVs) (Iimi, 2005; Gemmell et al., 2013). Using an IV approach is probably the most appropriate way to address endogeneity. The challenge has been the scarcity of appropriate time-variant exogenous instruments.

Researchers have used a variety of IVs, including land area (Enikolopov and Zhuravskaya, 2007), country’s legal origin (Fisman and Gatti, 2002), or fiscal autonomy (Baskaran and Feld, 2013). However, in some cases it is far from obvious what is the correlation between those instruments and fiscal decentralization; while, in other cases, it is not clear the exogeneity of the instruments. Several recent studies have looked at geography as a possible exogenous identifier of fiscal decentralization. Canavire-Bacarreza and Martinez-Vazquez (2012) explore the empirical relevance of geography (elevation, land area, climate, and so on) as a determinant of fiscal decentralization, and as geography is truly exogenous, its validity as an instrument for decentralization cannot be questioned.

However, an important problem with geography is that is time invariant and therefore not helpful in panel estimation contexts; and creating and interactions with other variables such as the development of infrastructure would bring us back to the endogeneity issue. Last but not least, geographical area could be endogenous in the long run (Alesina and Spolaore, 2003).

Given the difficulty of finding suitable external instruments for fiscal decentralization, many researchers have turned to utilizing estimation approaches that have the potential to mitigate if not fully address the endogeneity issue. The most relevant has been the system-GMM estimator, developed by Arellano and Bover (1995) and Blundell and Bond (1998). Examples of papers in the fiscal decentralization literature using this approach include Strumpf and Oberholzer-Gee (2002), Kyriacou et al. (2015), Filippetti and Sacchi, (2016). The virtue of the system-GMM estimator in panel analysis is that it preserves the information which comes from the cross-country dimension of the data as it can control for country specific effects, whereas such information is normally lost when employing first difference GMM. On the other hand, other

---

6 A good instrument needs to be highly correlated with our variable of interest – fiscal decentralization –but uncorrelated with the error term of the main equation. Of course, one can never be sure about the effectiveness of IVs. Several statistical tests are available for checking for the presence of weak instruments. Ideally, one should look for natural experiments or randomized experiments that could be used as instrumental variables.

7 Panizza (1999) and Arzaghi and Henderson (2005) find that the size of the country is an important determinant of fiscal decentralization.
researchers are skeptical about the ability of system-GMM to adequately address the problem of endogeneity. The concern is that in using lagged values of fiscal decentralization as IVs, fiscal decentralization may be stable over time and have a persistent impact on the dependent variable, resulting in the correlation between the instrument and the error term, and therefore not meeting the exclusion restriction.

Summing up, despite all the efforts so far in the literature, the issue of endogeneity in the measurement of decentralization remains a critical obstacle to the wholesale validity of a significant part of the burgeoning empirical literature reviewed next.

4. ECONOMIC AND FISCAL CONSEQUENCES OF FISCAL DECENTRALIZATION

The last two decades have witnessed a bourgeoning of the literature examining the impact of fiscal decentralization on a wider array of fiscal and economic issues. In this section, we focus on a selected number of economic areas based on both their importance and the attention that has attracted.

4.1 The impact on service delivery, infrastructure, and expenditure composition

Oates’s (1972) theorem predicts a greater efficiency of decentralized service delivery in terms of allocative efficiency. A second concept of efficiency with decentralization is that of production efficiency; that is, delivering a particular bundle of public services at a minimum cost, then translating into an increased quality and quantity of the services. Since education and health are among the most important types of decentralized services (OECD, 2013), a lot of the empirical literature has focused on those two areas.

The empirical studies on the effectiveness of decentralization process on education outcomes vary in terms of their scope and focus. Most of them are just indirect tests of allocative efficiency, and examine the overall impact of the reforms on expenditures and outcomes, such as enrollment rates and students’ performance. Many researchers find decentralization affects education outcomes positively (Faguet in Bolivia, 2004; Simatupang in Indonesia, 2009; Faguet and Sánchez in Colombia, 2014; Barankay and Lockwood in Switzerland, 2007). In turn, cross-country studies also tend to confirm the positive outcomes of decentralization on education (e.g., Falch and Fischer 2012 for OECD countries). More recently, OECD (2013) shows that, while educational policies and functions can be delegated either to sub-central governments or to schools, both strategies are equally beneficial for achieving high-quality primary and secondary education.

The findings for health services confirm that decentralization has similar virtuous effects. Positive results are found in Argentina by Habibi et al (2003), in Canada and OECD countries by Jiménez-Rubio (2011a,b), in Italy by Porcelli (2014), and in Spain by Cantarero and Lago-Peñas (2012). However, results are, overall, weaker than those for education and, in some cases, the impact of decentralization is actually negative. This may be due to decentralized governments giving lower priority to healthcare services with respect to education services. Such variability in the empirical results is also described in Table 1, where we provide a selection of papers on this topic.

[Insert Table 1]
There is more consensus in the literature in terms of the effects of decentralization on expenditure composition. The more common finding is that decentralization leads to relatively higher spending on social sectors, such as education and health, with respect to other functions (Faguet, 2004, 2008; Arze et al. 2016), but there are some exceptions, such as case studies by Schwartz et al. (2002) for the Philippines, and Ferrario and Zanardi (2011) for Italy.

Regarding other public services, the evidence on the impact of decentralization is also mixed but leaning fairly strongly to the positive side. For Korea, Wade (1998) finds increases in efficiency in decentralized irrigation systems as opposed to relatively inefficient centralized systems in India. Escaleras and Register (2012) test whether relatively more decentralized countries fare better when natural disasters strike.

In the case of infrastructure there has been a great decentralization push worldwide (Frank and Martinez-Vazquez 2015). The share of sub-national governments in total capital expenditures of a country is typically twice their share in total recurrent expenditures. However, some countries execute up to 90 percent of their public investment through sub-national level governments, while others not nearly 10 percent. The overarching trend that shapes the development of infrastructure gaps is urbanization. All in all, fiscal decentralization imposes significant intergovernmental coordination challenges regarding planning, regulation, spending, financing, and especially maintenance. In addition, in most countries there are large up-and-down-swings and volatility in the level of decentralized investment spending over the business cycle. There is a limited empirical literature on the effect of decentralization on infrastructure spending, and its composition and quality. The expectations often are that decentralization may lead to higher production efficiency because of cost savings - cheaper local building materials and local labor, more efficient project design and less bureaucracy (e.g., Peterson and Muzzini 2005). Empirically, the World Bank report (1994) provides support for numerous cases where delivered infrastructure in decentralized settings is of better quality and completed at lower costs than in centralized ones. In terms of quantity, Estache and Sinha (1995) for OECD and developing countries and Kappeler and Välilä (2008) for European countries find that decentralization tends to increase both total and sub-national spending on public infrastructure. However, more recently, Viñuela (2015), using an extended sample of developed and developing countries, finds that fiscal decentralization is associated with better quality although lower amounts of fixed capital formation.

Instead of measuring changes in the amount and outcomes of public services, an alternative way is to ask citizens and taxpayers directly how they feel about decentralized services delivery. A growing number of household surveys typically have shown increased citizen satisfaction with decentralized delivery of public services (e.g., Hellman et al., 2003 for Indonesia; Diaz-Serrano and Rodríguez-Pose, 2015 for European countries). Similarly, other studies find that decentralization is associated with improved citizens’ feelings of trust in government-related institutions (Ligthart and van Oudheusden 2015 for OECD countries). Finally, some recent contributions have focused on the implications of decentralization for happiness. Björnskov et al. (2008) find that local autonomy may not be associated with greater levels of individuals’ happiness and may be detrimental in some cases.

Summing up, direct tests on the allocative and production efficiency of fiscal decentralization have remained elusive in the literature and much work remains to be done. The indirect evidence is that decentralization favors more spending on the social sectors and improved outcomes in education and perhaps in public health. The evidence on other functional sectors is still too
limited, but moderately optimistic in outcomes. In the case of infrastructure, the lion share of that type of spending is now decentralized worldwide, and although its quality may have improved, it is unclear that decentralization has led to more infrastructure spending. The analysis of survey data tend to confirm that citizens perceived public services to have improved when they are decentralized. Finally, the literature in this area has only partially addressed the endogeneity and measurement issues discussed in Section 3. As shown in Table 1, the recurrent strategy to deal with endogeneity between fiscal decentralization and different dependent variables is IV estimations, where lag values of the former are used given the difficulty of finding time-variant suitable external instruments.

4.2 The impact on economic growth

The proposition that fiscal decentralization enhances economic efficiency may have a corresponding effect on the dynamic setting of economic growth (Oates 1993). Theoretically, more fiscal autonomy may be associated with higher output per unit of labor and higher growth rates (Brueckner, 2006). However, a causation path is not clear-cut, and decentralization may affect growth indirectly through its impact on other socio-economic variables, such as macro stability and government quality (Martinez-Vazquez and McNab, 2003), or through its interaction with the institutional framework (Feld and Schnellenbach, 2011).

There is hardly any other topic on the impact of decentralization that has received more attention in the empirical literature. However, the findings remain mixed as reported in the Table 2.

On the negative side, Xie et al. (1999), Zhang and Zou (1998), Ezcurra and Rodriguez-Pose (2011) find fiscal decentralization to reduce GDP growth (for both a single case study such as China and cross-country analyses on OECD sample). In addition, Thornton (2007) finds no impact for revenue decentralization, but Baskaran and Feld (2013) show those results were not robust.

Quite a few papers find positive effects on growth (Feld et al. 2004 for Switzerland, Qiao et al. 2008 for China, Akai and Sakata 2002 for the U.S., Gemmell et al. 2013 for OECD countries), whereas Thiessen (2003) shows that the relationship is positive when fiscal decentralization is increasing from low levels, but then reaches a peak and turns negative.

There may be different reasons to explain the diverse results. For example jurisdiction heterogeneity may be too hard to capture (Salmon 2013), or the institutional set up is too complex and partially unobserved (Voigt and Blume, 2012) or simply because political and administrative dimension are not properly considered (Filippetti and Sacchi 2016). Still another possibility may be related to how some forms of decentralization (sub-national government policies) affect economic efficiency by distorting resource allocation away from efficient uses. Here, the evidence is very limited. For example, Day and Winer (2006) study the effect of provincial unemployment schemes on labor mobility in Canada, and Abdullatif et al. (2013) find, for a large panel of countries, that decentralization is generally associated with higher costs of doing business. However, for the U.S. Sobel et al. (2013) find that decentralization at state-level leads to better a business climates and faster growth.
Beyond the reasons covered above, perhaps it should be no surprising that studies using different data, estimation techniques and specifications and different definitions of decentralization as well produce diverging results. Clearly, the results are not robust. The issue of endogeneity is likely very prominent from growth (lack thereof) to decentralization and often it has been ignored in this research. And when acknowledged, it has been handled basically with the lack of good external instruments as reported in Table 2, putting into question the findings in this area.

4.3 The impact on macroeconomic stability and fiscal sustainability

There are good reasons to expect that decentralization could challenge a country’s fiscal sustainability, as illustrated by the experiences of Argentina and Brazil with hyperinflation several decades back. Decentralized frameworks are more sensitive to the problem of soft budget constraints, borrowing rules may not be effective enough, and central authorities may not be able to commit to no bailout policies (Martinez-Vazquez and Vulovic, 2016; Goodspeed, forthcoming).

On the other hand, decentralization itself could encourage governments’ fiscal discipline. Providing all levels of government with sufficient tax autonomy would encourage fiscal responsibility, while vertical and horizontal virtuous fiscal competition would shrink the monopolistic power of the Leviathan (Brennan and Buchanan, 1980).

Beyond the theoretical expectations, the empirical evidence on the relationship between decentralization and fiscal stability offers mixed results. Two strands of the literature can be identified depending on the type of dependent variable analyzed: fiscal discipline versus the inflation targeting, where the former is normally more addressed being more in the governments’ hands. Several studies find that tax autonomy and borrowing rules can lead to improved fiscal discipline, including Rodden (2002), Neyapti (2010), Eyraud and Lusinyan (2014), and Presbitero et al. (2014), all using cross country panel data. However, the effectiveness of tax autonomy as a disciplining factor is questioned in several other studies, also using panel data, as producing negative results (de Mello 2000) or being insignificant (Thornton, 2009). In Table 3 we summarize this variability.

[Insert Table 3]

As for fiscal decentralization and inflation issue, some studies find no effect (Treisman, 2000; Rodden et al., 2003), while others find that sub-national tax autonomy leads to lower inflation (Martinez-Vazquez and McNab, 2003; Baskaran, 2012).

Overall, far from being destabilizing, fiscal decentralization - especially on the revenue side - could improve fiscal discipline and macroeconomic stability. However, untreated endogeneity may weaken the results. Indeed, sources of possible endogeneity in the data could arise not only between fiscal decentralization and fiscal discipline but also for other variables used in the estimation (e.g., unemployment). As shown in Table 3 very few papers in this literature have even attempted to address this issue. The challenge remains to find valid instruments beyond using lag values.
4.4 The impact on income inequality and poverty

Fiscal decentralization can directly affect poverty and income distribution by facilitating access to basic services, but also indirectly in many ways (by means of growth, expenditure composition, the quality of governance). Ultimately, those impacts will depend on the specific characteristics of each decentralization process. The relevance of the question lies in the fact that international organizations and many national governments have advised or embarked simultaneously on income inequality and poverty reduction as well as fiscal decentralization reforms (Ravallion, 1999; Rao, 2002; Galasso and Ravallion, 2005). The big question is whether these reforms are complementary or, perhaps, undermine each other.

Although closely related, income inequality and poverty do not need to move in the same direction in response to fiscal decentralization. This will depend on how changes in the distribution will affect the poorest. The empirical literature mostly looks at the two issues separately. First, a good number of studies find a beneficial effect of decentralization on the Gini coefficient (Von Braun and Grote, 2002; Lindaman and Thurmaier, 2002; Tselios et al., 2012). A similar result is found in Sepúlveda and Martínez-Vázquez (2011), but only when government size is at least 20 percent of GDP. In these cases, decentralization measures are mostly expenditure-based. Nevertheless, other studies find that higher tax decentralization leads to higher income inequality (Sacchi and Salotti, 2014; Neyapti, 2006), as highlighted in Table 4. This is intuitive if sub-national taxes are less progressive than those at the central level.

On the direct impact of decentralization on poverty, the empirical evidence is so far even more highly mixed. Some earlier studies by Crook and Manor (1998) find positive impacts of political and administrative decentralization on poverty reduction in developing countries. Positive outcomes also emerge in country case studies (Galasso and Ravallion 2005 for Bangladesh’s food-for-education program; Bardhan and Mookherjee 2003 for India). However, other studies find that decentralization can negatively affect poverty levels (Sepúlveda and Martínez-Vázquez 2011 using panel data, West and Wong 1995 for China).

This is an area where more research clearly needs to be performed. Normative public finance traditionally has reserved redistribution goals to the central government and, actually, many programs affecting income distribution and the poor have been increasingly devolved to sub-national governments. If the negative effects on poverty were confirmed, that should stop the championing of decentralization by institutions concerned with poverty reduction. As shown in Table 4, the empirical studies so far are too dispersed in the data used, estimation approaches and in addressing endogeneity.

4.5 The impact on geographical and interregional disparities

Fiscal decentralization may also affect regional economic convergence and increase or dampen disparities in public services availability (e.g., Gil Canaleta et al., 2004; Rodríguez-Pose and Ezcurra, 2010). The net effect is far from evident from a theoretical standpoint.

On the one hand, decentralization may lead to increased regional disparities because it strengthens the differences in institutional capacities and socio-economic endowments across regions, as in the case of China (Zhang 2006). In addition, decentralization may lead to a
reduction of the influence of poorer areas over the allocation of financial resources (Besley and Ghatak, 2003). On the other hand, decentralization may contribute to reducing interregional disparities because of higher transparency and by bringing more efficiency and equalization across jurisdictions (Martinez-Vazquez and Timofeev 2008; Béland and Lecours 2010; Liu et al., 2016).

Most studies show that decentralization is associated with a general reduction in territorial disparities (Shankar and Shah, 2003; Rodriguez-Pose and Gill, 2005). Positive results also emerge in single case studies (Bonet 2006 for Colombia, Hill 2008 for Indonesia; Qiao et al. 2008 for China). However, these positive effects may be dependent on the level of economic development (Lessman 2012) or on the quality of governance (Kyriacou et al. 2015).

Although with some qualifications, this is an area where the evidence is quite robust. Decentralization contributes to regional convergence and more equal access to services. This strong result does not mean, however, that this research has solved the major problems, including that of endogeneity, as summarized in Table 5.

[Insert Table 5]

5. POLITICAL AND POLICY CONSEQUENCES OF FISCAL DECENTRALIZATION

Over the last several decades, there has also been developing interest in the impact of fiscal decentralization processes on political institutions and public policies. We focus on a selected number of areas based on their importance and the attention received in the literature.

5.1 The impact on government size and public policies

Beyond the restraining effects that decentralization may have on government size according to the Leviathan hypothesis, such impact may also depend on the nature of decentralization and on how the public sector size is measured. For example, when size is measured by the level of public employment, there is robust evidence that increases in sub-national employment following decentralization often overwhelms the corresponding decreases at the central level (Martinez-Vazquez and Yao 2009 for a panel of countries; Marqués and Rosselló 2004 for Spain; Rajaraman and Saha 2008 for India). This may represent some inefficiency or, alternatively, simply a response to the expansion of labor-intensive public services.

As for the nature of decentralization, there is evidence that higher revenue decentralization leads to smaller size of the whole public sector (Jin and Zou, 2002). This may be due to increased fiscal responsibility throughout but also to increased tax competition. The burgeoning literature on this topic dates back to the pioneering work by Zodrow and Mieszkowski (1986) and Wilson (1986). The most significant implication is that sub-national governments’ competition for mobile tax bases leads to lower tax rates through a process that has been dubbed “a race to the bottom”. As a result government expenditures are inefficiently low. Subsequent works have extended and refined this hypothesis in numerous directions. For example, smaller jurisdictions may be more exposed to this sort of competition because of higher base mobility (Bucovetsky and Haufler, 2007), that it may differ by the type of taxes (Liberati and Sacchi, 2013). Moreover, the outcomes may be not so pronounced if policy moves are initiated by Stackelberg-leaders as opposed to non-cooperative players (Kempf and Rota-Graziosi 2010).
The empirical research on tax competition typically identifies the existence of strategic interactions by sub-national governments using spatial econometric models (Devereux et al., 2007), and although the findings are mixed, there is no strong support for “a race to the bottom”.

On the contrary, just higher expenditure decentralization would seem to lead to larger government size, perhaps for the opposite reasons. Sub-national transfer dependence would lead to laxer fiscal responsibility (Jin and Zou 2002; Moesen and van Cauwenberge, 2000; Rodden, 2003), and it may be also explained by a different type of competition. Selected papers within this literature are summarized in Table 6. When sub-national interjurisdictional competition takes place using public infrastructure and other of private productivity-enhancing policies, the result can be excessive public spending and larger government size (Bucovetsky, 2005; Egger and Falkinger, 2006).

[Insert Table 6]

Other forms of jurisdictional competition can affect the level of expenditures. An interesting case is that of what could be called (negative) welfare competition. To avoid being a magnet for welfare seeking migrants, jurisdictions may set their welfare benefits to be less attractive vis-à-vis those of their neighbors’. The evidence here is somewhat mixed. Earlier studies for the United States did not find significant evidence of welfare-seeking migration (Levine and Zimmerman, 1999). More recent evidence for the United States (Figlio et al., 1999; Saavedra, 2000) and for Norway (Fiva and Rattso, 2006) find that a jurisdictions’ responses to their neighbor’s decrease in welfare benefits are significantly larger in magnitude than its response to its neighbor’s increase in welfare benefits.

Summing up, decentralization is likely to lead to increases in public payroll, but this does not have to mean a less efficient public sector. Decentralization can also affect government size though a complex net of interjurisdictional competition modalities, which although not insignificant, they appear to be small in size and working in opposite directions. As highlighted in Table 6, the econometric issues are less constraining, especially in the case of tax and public input competition literature.

5.2 The impact on governance, accountability, and corruption

Most countries that are fiscally decentralized are also politically decentralized; but with some important exceptions like China. Thus, it is expected that governance and decentralization support each other in a bidirectional causal relationship (Martinez-Vazquez and McNab, 2006).

One noticeable way in which decentralization can improve governance is by its impact on enhancing accountability (Blair, 2000; Manor, 1999) and institutional quality (Kyriacou and Roca-Sagalés, 2011). Greater accountability at the sub-national level can accrue in different ways. One of these, and which has received much attention in the literature, is yardstick competition (Besley and Case, 1995). Imperfectly informed voters may use information on government performance in nearby jurisdictions as a yardstick or benchmark to evaluate their own incumbent’s performance. In turn, there is solid empirical evidence that neighboring jurisdictions do tend to mimic each other in taxes and other policies (Heyndels and Vuchelen, 1998; Revelli 2002; Solé-Ollé, 2003; Allers and Elhorst, 2005). And also that voters use the information from neighboring jurisdictions to decide whether or not to re-elect the incumbent politicians (Revelli, 2003; Bordignon et al., 2003; Bosch and Solé-Ollé, 2007).
The strongest way to build accountability at the sub-national level is holding periodic elections for office. However, electoral accountability of government officials may be undermined when individuals do not know whom to assign blame or praise for policy outcomes: In this sense, decentralized countries are more exigent for voters (Lago and Lago-Peñas, 2010a).

Hence, the most visible manifestation of good governance would be the absence of public corruption. Much attention has been devoted in the literature to whether decentralization leads to more corruption as also documented in Table 7. From a theoretical perspective, decentralization may help reduce corruption because of enhanced accountability and competition among local governments, the existence of additional “exit” and “voice” mechanisms, and higher levels of information and transparency at the sub-national level (Weingast, 1995; Seabright, 1996). On the negative side, fiscal decentralization may weaken monitoring, controls, and audits by central agencies, thereby creating opportunities for corruption (Prud’homme, 1995). In addition, political decentralization may favor higher incidence of corruption through involvement of a larger number of officials in dealing with potential investors, because of higher incidence of clientelism and because of interest group capture where elites dominate the local political scene (Shleifer and Vishny, 1993; Litvack et al., 1998; Bardhan and Mookherjee, 2000). Empirically, a good number of papers find that decentralization actually reduces the level of corruption (Fisman and Gatti, 2002; Arikan, 2004; Ivanyna and Shah, 2011; Altunbas and Thornton, 2012). When we shift the focus from corruption to the shadow economy, the empirical results also tend to confirm the virtue of decentralization processes (Buehn et al., 2013; Dell’Anno and Teobaldelli, 2015).

[Insert Table 7]

Nevertheless, there is also some empirical evidence on decentralization and higher corruption. In particular, countries with more tiers of sub-national governments are more corrupt (Fan et al., 2009) as are countries with more intense fragmentation into small local governments (Nelson, 2013). In both cases, the opportunities for corruption are increased.

In short, there is a mutually reinforcing relationship between fiscal decentralization and democratic governance. And governance is improved through increased accountability via elections and yardstick competition. Beyond the theoretical positive and negative arguments, decentralization is commonly believed to foster public sector corruption. The big surprise is the solid empirical evidence proving that decentralization is robustly associated with both lower corruption and shadow economy. However, the measurement of corruption mostly based on perception surveys, as shown in Table 7, clearly needs to be improved. On the other hand, this literature is less exposed to the problem of endogeneity.

5.3 The impact on social capital and tax morale

Does decentralization play a role on how individuals interact in society and view government? Two fields of literature have developed looking at the impact on social capital and trust in government including tax morale. While the seminal contribution by Putnam (1993) finds no clear evidence for or against the impact of decentralization on social capital, Hooghe and Marks (2003) show that decentralization may encourage more collective action, interaction, and, ultimately, social capital. These results are confirmed by de Mello (2004) for a wide sample of market economies.
With respect to trust in government, Ligthart and van Oudheusden (2015) find that decentralization increases trust in government and also in other political institutions such as political parties and parliaments. In turn, the empirical evidence on tax morale provided by Güth et al. (2005) reflects that people’s propensity to pay taxes is higher in a decentralized system, wherein taxes collected in one region are spent exclusively on that region’s public goods, than in a centralized setting, wherein taxes paid in all regions are pooled and spent on regional public goods on a per capita basis. However, if fiscal equalization is strong enough, this mechanism may be cancelled out. Residents in net fiscal contributor regions may tempted to think that the federal fiscal menu is disadvantageous, with this opinion boosted by sub-national political seeking changes in fiscal arrangements. Cheating on national taxes may be then socially justified as a way of de facto increasing the fairness of the system in rich regions (Lago and Lago-Peñas 2010b).

Summing up, decentralization would appear to have virtuous effects on social capital and trust in government, including tax morale as pointed out in Table 8. However, tax morale may be reduced if there is a perception in some regions that decentralization carries out too much interjurisdictional redistribution. All in all, this is a newer and much less explored area of research which certainly would benefit from further study, where the econometric issues, including endogeneity, are generally more straightforward.

[Insert Table 8]

5.4 The impact on voter turnout, party system nationalization, and national unity

Finally, we analyze the potential impact of decentralization on three important political outcomes: voter turnout, strength of national parties, and national unity. Main results are summarized in Table 9.

[Insert Table 9]

Concerning turnout, intuitively, people would seem more prone to vote when the legislature and government to be elected have more power, resources and/or authority. This is what the second-order elections model states (Reif and Schmitt, 1984). Hence granting more power to sub-national governments should contribute to increased turnout in sub-national elections and to lower participation in national elections. However, the empirical evidence reported by Blais et al. (2011) does not show any significant effects of different indicators of decentralization on turnout in national elections for a large sample of countries; the exception is in Canada and Spain with slightly greater turnout in regional elections. Likewise, Schakel (2013) finds that regional authority does not affect national vote shares in advanced economies.

Does decentralization reduce the spatial homogeneity of party systems? According to the rational choice institutionalist approach (Chhibber and Kollman, 2004) as national governments decentralize power, party system nationalization should decrease—the latter defined as the extent to which parties compete with similar strength across sub-national geographic units (Kasuya and Moenius, 2008). However, in a cross-country study of Western European countries, Lago and

---

8 Both countries subject to centrifugal regional forces in recent times.
Lago-Peñas (2011) do not find robust relationships between the degree of decentralization and party system nationalization. On the other hand, Harbers (2009) show that political and fiscal decentralization hinder the development of nationalized party systems in Latin American democracies.

Finally, there is a potential role played by decentralization as solutions to secessionist pressures and to avoiding the breakup of nations (Alesina and Spolaore, 2003). The available empirical evidence is scarce and it does not provide strong support for the conjecture. Sorens (2008) finds that “regionalism” may be an alternative to secessionism by providing a political protagonist role to regionalist and secessionist parties. However, Kymlicka (1998), focusing on specific cases as Catalonia and Québec, concludes that federalism may not provide a viable alternative to secession in multination states. Furthermore, asymmetrical decentralization arrangements favoring secessionist regions can also boost perceptions of discrimination in other regions and, eventually, lead to more conflict (Bird and Ebel, 2006).

In a nutshell, decentralization does not appear to much affect voter turnout or weaken party system nationalization. In addition, the empirical literature does not provide strong support on whether decentralization works as glue or solvent of countries’ unity. This field is still at an early stage and would benefit from further research. However, the endogeneity issue may be more stringent higher here, even though many of the studies so far have ignored it, as shown in Table 9.

6. CONCLUSIONS AND EXTENSIONS

Our survey on the impact of fiscal decentralization by necessity had to be selective but it tries to provide a balanced view of what is known and what will be useful in advancing empirical research and practice of fiscal decentralization.

Future developments should aim at improving upon institutional and methodological dimensions of the topic. Concerning institutional advances, it would be important to improve the standardization and overall quality of decentralization data. Something that international organizations like the OECD and the World Bank have talked about doing in the past. Countries’ efforts to guarantee information availability according to international standards are a previous key step in this respect, because the decentralization of powers itself challenges data homogeneity and comparability. Besides, strengthening research networks could help with harmonizing methodologies and data sources and, finally, with the quality and robustness of results.

At a methodological level, a crucial issue is the use of more sophisticated econometric tools, say based on a better instrumental variables approach to deal with potential endogeneity. Replication studies should also play a more relevant role in the future as some of the diverging findings are likely to be the result of inadequate estimation methods. Finally, meta-analysis on existing research is possible in some areas where both the number of papers and methodological convergence are significant (see Baskaran et al. 2016 for a fresh contribution on decentralization and economic growth).

In comparative terms, research on the political consequences of decentralization is less abundant than that relating to the economic consequences. In particular, we need to know more about the influence of decentralization on the behavior of individuals as taxpayers and voters, how decentralization affects the functioning of party systems, and the net effect of
decentralization on accountability and electoral control. In contrast, there are already numerous contributions on the effects of decentralization on key economic variables such as GDP growth, income inequality and poverty, and fiscal stability. In this case, the recipe for future research combines the need for replication studies that address particularly the problem of endogeneity with meta-analysis. Finally, additional cross-country studies on the impact of decentralization on spending efficiency and service delivery should complement the single case studies prevailing in the area.

Definite answers to all the questions regarding the effects of fiscal decentralization are not likely to become available, even after the additional research that is still required in many areas is completed. But, overall, there are reasons to be optimistic about a net positive impact of decentralized systems having been introduced all over the world in the past several decades, especially when those decentralization processes have been well-designed and implemented. At the end, there is still much work to be done on how to improve the design and implementation of fiscal decentralization reforms precisely based on the information and knowledge of the academic literature, part of which has been reviewed in this paper.
REFERENCES


Jin, J. and Zou, H. (2002). How does fiscal decentralization affect aggregate, national, and


Table 1: Selected papers on the impact on service delivery, infrastructure, and expenditure composition

<table>
<thead>
<tr>
<th>Authors</th>
<th>Main dependent variables</th>
<th>Decentralization variables</th>
<th>Data &amp; econometric technique</th>
<th>Endogeneity issue</th>
<th>Main results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>i) % of revenue raised locally. i) % of locally controlled revenue over the total.</td>
<td>Period: 1987-1996</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Share of sub-national government spending of general government spending.</td>
<td>Method: Principal component analysis, OLS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Habibi et al. (2003)</td>
<td>Infant mortality rate.</td>
<td>i) % of revenue raised locally. i) % of locally controlled revenue over the total.</td>
<td>Sample: 23 Argentinean provinces</td>
<td>Not treated</td>
<td>Decentralization decreases infant mortality rates.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) % of revenue raised locally. ii) % of locally controlled revenue over the total.</td>
<td>Period: 1970-1994</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>i) Own local resources/ Total municipal education expenditures</td>
<td>Period: 1980 – 2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) Own local resources/ Total municipal health expenditures</td>
<td>Method: Panel FE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iii) Municipal independence (dummy 1 for municipalities subject to regional government interventions).</td>
<td>Sample: Colombian municipalities</td>
<td>Treated by IV: the mineral and hydrocarbon royalties received by a municipality as instrument of decentralization.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Period: 1994-2004</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Method: Panel RE; IV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faguet &amp; Sánchez (2014)</td>
<td>Access to education and health (change in the number of students enrolled in public schools; change in the poor population covered by public health insurance).</td>
<td>i) Ratio of education expenditures to total public expenditures. i) Ratio of health expenditures to total public expenditures.</td>
<td>Sample: 42 developed and developing countries</td>
<td>Treated by GMM: lags of decentralization.</td>
<td>Decentralization improves enrollment rates in public schools and access of the poor to public health services.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) Ratio of education expenditures to total public expenditures.</td>
<td>Period: 1990-2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iii) Ratio of health expenditures to total public expenditures.</td>
<td>Method: GMM; Quasi-Maximum Likelihood estimators.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Escaleras &amp; Register (2012)</td>
<td>Natural disasters (number of deaths per 100,000 persons due to earthquakes, floods, landslides, volcanoes, etc.)</td>
<td>Expenditures of local/regional governments relative to the total of spending by all levels of government.</td>
<td>Sample: 79 countries</td>
<td>Treated by IV: legal origins</td>
<td>Decentralization is associated with lower natural disaster death rates. (Robust only for developing countries).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Period: 1972–2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Method: OLS; Quantile regression; IV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bjørnskov</td>
<td>Life satisfaction (subjective well-being)</td>
<td>i) Political decentralization</td>
<td>Sample: 66 countries (survey of</td>
<td>Not treated</td>
<td>More spending or revenue decentralization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>public opinion of 27 countries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>Measure</td>
<td>Method</td>
<td>Period</td>
<td>Results</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>--------</td>
<td>--------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>et al. (2008)</td>
<td>being on a scale from 1–10)</td>
<td>constitutional stipulations which grant exclusive rights to legislate</td>
<td>60,000 individuals</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ii) Fiscal decentralization</td>
<td></td>
<td></td>
<td>raises well-being.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Method: OLS; Ordered logit; IV.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authors</td>
<td>Main dependent variables</td>
<td>Decentralization variables</td>
<td>Data &amp; econometric technique</td>
<td>Endogeneity issue</td>
<td>Main results</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------</td>
<td>-----------------------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td>Thiessen (2003)</td>
<td>i) Growth rate of real GDP</td>
<td>i) The share of sub-national government expenditures (revenues)</td>
<td>Sample: high-income OECD countries</td>
<td>Not treated</td>
<td>Positive relationship but turning negative at some point.</td>
</tr>
<tr>
<td></td>
<td>ii) Average annual investment to GDP ratio.</td>
<td>ii) Unweighted average of both</td>
<td>Period: 1973-1998</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ii) Average annual TFP growth.</td>
<td>iii) Local own revenues as a share of local total revenues</td>
<td>Method: OLS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gemmell et al. (2013)</td>
<td>Annual rate of growth of GDP</td>
<td>i) Expenditure share</td>
<td>Sample: 23 OECD countries</td>
<td>Treated by IV; lags of decentralization</td>
<td>Positive relationship for revenue decentralization, but negative for expenditure decentralization.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) Revenue share</td>
<td>Period: 1972-2005</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Method: Pooled Mean Group; IV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filippetti &amp; Sacchi (2016)</td>
<td>Real per capita GDP growth rate (5-years average)</td>
<td>i) Sub-central governments’ own tax revenue over general government total tax revenue</td>
<td>Sample: 21 OECD countries</td>
<td>Treated by GMM: lags of tax decentralization.</td>
<td>Property tax decentralization leads to higher growth when coupled with high administrative &amp; political decentralization.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) Property tax or income tax decentralization (over general government total tax revenue)</td>
<td>Period: 1970-2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iv) Administrative &amp; political decentralization</td>
<td>Method: OLS; panel FE; GMM; IV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Period: 1980-1992</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Method: Panel LSDV; GLS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Period: 1985-1998</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Method: Panel FE; RE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Xie et al. (1999)</td>
<td>Real per capita GDP annual growth rate</td>
<td>Expenditure shares at different levels.</td>
<td>Sample: 50 states of USA</td>
<td>Not treated</td>
<td>Negative effect on growth.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Period: 1948-1994</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Method: OLS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) Mean of both indicators sub i.</td>
<td>Period: 1992-1996</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iii) Local own revenue to total revenue.</td>
<td>Method: OLS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3: Selected papers on the impact on macroeconomic stability and fiscal sustainability

<table>
<thead>
<tr>
<th>Authors</th>
<th>Main dependent variables</th>
<th>Decentralization variables</th>
<th>Data &amp; econometric technique</th>
<th>Endogeneity issue</th>
<th>Main results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authors</td>
<td>Main dependent variables</td>
<td>Decentralization variables</td>
<td>Data &amp; econometric technique</td>
<td>Endogeneity issue</td>
<td>Main results</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>-------------------</td>
<td>--------------</td>
</tr>
</tbody>
</table>
| Tselios et al. (2012) | Within-region income inequality | i) Sub-national expenditure and revenue shares  
Method: Panel FE; GMM. | Treated by GMM. | Fiscal decentralization lowers interpersonal income inequality. |
| Sepúlveda & Martinez-Vazquez (2011) | i) Poverty (headcount ratio; poverty gap; Human Development Index).  
ii) Gini coefficient (on disposable income). | Sub-national expenditure decentralization share. | Sample: 56 countries (inequality)/ 65 countries (poverty)  
Method: Panel FE; panel GLS; IV. | Treated by IV: land area, population, openness | Decentralization reduces income inequality (when size of government is over 20% but leads to increased poverty counts |
Method: Panel FE; panel FGLS; IV. | Treated by IV: lags of decentralization | Higher tax decentralization increases household income inequality |
Period: three decades (1970s, 1980s, 1990s).  
Method: Panel RE; Cross-section analysis. | Hausman test revealing no endogeneity. | Revenue decentralization increases income inequality but, with good governance, it reduces it |
<table>
<thead>
<tr>
<th>Authors</th>
<th>Main dependent variables</th>
<th>Decentralization variables</th>
<th>Data &amp; econometric technique</th>
<th>Endogeneity issue</th>
<th>Main results</th>
</tr>
</thead>
</table>
Table 6: Selected papers on the impact on government size and public policies

<table>
<thead>
<tr>
<th>Authors</th>
<th>Main dependent variables</th>
<th>Decentralization variables</th>
<th>Data &amp; econometric technique</th>
<th>Endogeneity issue</th>
<th>Main results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Devereux et al. (2007)</td>
<td>Competition at state level in tax rates on cigarettes and gasoline.</td>
<td>Weighted average of other states' taxes on cigarettes and gasoline.</td>
<td>Sample: 48 US states Period: 1977-1997 Method: IV</td>
<td>Treated by IV: federal deficit % GDP and federal unemployment rate</td>
<td>Taxes in neighboring states have a significant and large effect in the case of cigarettes but not so for gasoline.</td>
</tr>
<tr>
<td>Jin &amp; Zou (2002)</td>
<td>i) Sub-national, ii) national, iii) total government expenditures % GDP.</td>
<td>i) Sub-national expenditures and revenues shares</td>
<td>Sample: 32 countries (industrial and developing) Period: 1980-1994 Method: Panel FE; FGLS</td>
<td>Not treated</td>
<td>i) Expenditure decentralization leads to smaller national governments, larger sub-national and aggregate governments. ii) Revenue decentralization increases sub-national governments, reduces more national governments, so reduces aggregate governments iii) Transfer dependence increase the sizes of all government levels.</td>
</tr>
</tbody>
</table>
Table 7: Selected papers on the impact on governance, accountability, and corruption

<table>
<thead>
<tr>
<th>Authors</th>
<th>Main dependent variables</th>
<th>Decentralization variables</th>
<th>Data &amp; econometric technique</th>
<th>Endogeneity issue</th>
<th>Main results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Period: 1996-2005</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Method: Panel FE; GLS; IV method</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dell’Anno &amp; Teobaldelli (2015)</td>
<td>Corruptino (perceived); shadow economy (by Buehn and Schneider 2012).</td>
<td>i) Sub-national expenditure and revenue shares.</td>
<td>Sample: 145 countries (developed and developing)</td>
<td>Treated by IV: legal origins</td>
<td>Decentralization is associated with lower shadow economy and corruption.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) Political and administrative decentralization.</td>
<td>Period: 1999-2007 (cross-country analysis)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Method: OLS; IV.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fan et al. (2009)</td>
<td>Corruption (based on firms’ survey).</td>
<td>i) Number of tiers of government</td>
<td>Sample: 80 developed and developing countries</td>
<td>Not treated</td>
<td>More tiers of sub-national governments and larger public payrolls associated with more corruption.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Method: ordered probit model</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 8: Selected papers on the impact on social capital and tax morale

<table>
<thead>
<tr>
<th>Authors</th>
<th>Main dependent variables</th>
<th>Decentralization variables</th>
<th>Data &amp; econometric technique</th>
<th>Endogeneity issue</th>
<th>Main results</th>
</tr>
</thead>
</table>
Table 9: Selected papers on the impact on voter turnout, party system nationalization, and national unity

<table>
<thead>
<tr>
<th>Authors</th>
<th>Main dependent variables</th>
<th>Decentralization variables</th>
<th>Data &amp; econometric technique</th>
<th>Endogeneity issue</th>
<th>Main results</th>
</tr>
</thead>
</table>